AC890PX
Modular Chassis Drive
High Power AC Drive 110 kW - 2000 kW
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High Power AC Drive - AC890PX Modular Chassis Drive

Overview

Description
AC890PX Modular Chassis drive is supplied in a kit format for assembly into a standard Rittal TS range industrial enclosure. This enables system integrators and panel builders to add any number of drive sections into their standard electrical control systems, thereby reducing overall enclosure size and complexity.

The AC890PX Modular Chassis kit is supplied complete with all of the necessary individual components and fixings required to complete the assembly of the drive. It can easily be assembled by a technician with minimal drives technical knowledge.

Features
- AC Fed (SD) or DC Fed (CD) modular design configuration
- Power range 110 - 400 kW
- Sold in kit format for self-assembly
- Easy integration into power drive systems

Technical Characteristics - Overview
The AC fed (SD) version of the AC890PX Modular Chassis drive is available with three AC input power supply options to suit individual requirements.

<table>
<thead>
<tr>
<th>Version</th>
<th>400 V nominal</th>
<th>600 V nominal</th>
<th>700 V nominal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply</td>
<td>380...480 VAC</td>
<td>500...575 VAC</td>
<td>600...690 VAC</td>
</tr>
<tr>
<td>kW ratings</td>
<td>0-400 VAC 50 Hz</td>
<td>0-575 VAC 50 Hz</td>
<td>0-690 Vac 50 Hz</td>
</tr>
<tr>
<td>HP ratings</td>
<td>0-460 VAC 60 Hz</td>
<td>0-575 VAC 60 Hz</td>
<td>0-690 Vac 50 Hz</td>
</tr>
<tr>
<td>Heavy Duty</td>
<td>110...315 kW, 215...580 A</td>
<td>110...315 kW, 160...410 A</td>
<td>110...315 kW, 130...340 A</td>
</tr>
<tr>
<td>150% overload for 60 s</td>
<td>150% overload for 60 s</td>
<td>150% overload for 60 s</td>
<td>150% overload for 60 s</td>
</tr>
<tr>
<td>Normal Duty</td>
<td>132...400 kW, 260...700 A</td>
<td>132...400 kW, 170 - 440 A</td>
<td>132...400 kW, 160 - 430 A</td>
</tr>
<tr>
<td>110% overload for 60 s</td>
<td>110% overload for 60 s</td>
<td>110% overload for 60 s</td>
<td>110% overload for 60 s</td>
</tr>
</tbody>
</table>
Range Overview

The AC890PX Modular Chassis Drive is a high performance, high power modular drive designed to control 3-phase induction or permanent magnet AC motors, or to be used as an active front-end with power ratings ranging from 110 kW...2000 kW. It can be supplied either in modular kit form, or as a packaged drive system.

AC890PX Modular Chassis High Power AC Drive:
110...400 kW
The AC890PX Modular Chassis drive has been designed to be sold in kit form for assembly by a system integrator or panel builder. The product is engineered for easy assembly into a standard industrial enclosure with all necessary fixing brackets supplied as part of the kit. The AC890PX Modular Chassis drive offers systems builders the flexibility to add all ancillary components in order to tailor the product to meet their customers needs.

Packaged Drive Options - Factory Supplied

AC890PX Modular FASTPACK simple packaged drive system: 110...400 kW
The AC890PX Modular FASTPACK provides users with a ready-to-install standalone drive in an industrial enclosure complete with all additional control equipment. FASTPACK delivers an integrated packaged solution for single motor applications on short lead times. A range of standard pre-engineered control and communications options can be specified to complete the package and provide the necessary control and feedback, whatever the application.

AC890PX Modular Air-Cooled Parallel AC Systems Drive: 400...900 kW
Larger power paralleled drive solutions based on the AC890PX Modular Chassis drive can be supplied as a fully engineered solution direct from the factory. This allows up to three AC890PX Modular Chassis drives to be paralleled together to achieve control of motors with powers up to 900 kW. The air cooled solution provides a cost effective solution as the modular design of the product allows only the required power stages to be supplied to create a parallel solution.

AC890PX Modular Advanced-Cooled AC Systems Drive: 500 kW...2 MW
Higher power ratings of up to 2 MW can be achieved using Parker's innovative advanced-cooled 'PowerPak' modules. These larger drives use the same modular construction as the rest of the AC890PX Modular Chassis drive range but are supplied with Parker's 2-phase advanced cooling system, which uses a non-conductive liquid refrigerant. This enables power density to be increased significantly, resulting in a significantly smaller footprint than can be achieve by air-cooling alone.
The AC890PX Modular Chassis is a modular high power AC drive platform designed for industrial applications with power requirements ranging from 110 kW up to 2000 kW. Available in kit form for integration into a standard control enclosure, or as a packaged standalone air-cooled or 2-phase liquid refrigerent cooled drive, AC890PX Modular Chassis drives can be configured for use in a wide range of applications and industries.

Compact Modular Design
The plug-in modular nature of the AC890PX Modular Chassis makes it easy to configure the drive to suit a number of alternative input power configurations including 12/18 pulse and Active Front End (AFE). The ‘PowerPak’ phase modules, common supply modules, capacitor and control module can be arranged to suit the particular requirements of the application.

Low-maintenance ensures maximum machine up-time and productivity
Thanks to a plug-in design, the power modules of the AC890PX Modular Chassis drive has been designed to be replaceable in minutes by any technician, even a non-specialist. These lightweight, ship anywhere modules help to reduce machine or process downtime and lost productivity in the event of a fault occurring.

AC890PX Modular Chassis drives can be configured with different PowerPak module combinations dependant upon the application.

CP Module
The capacitor module is only fitted to 400 kW drives and provides extra capacitance for the DC bus.

CD Module
These output modules each provide a single phase of the complete drive and can be interchanged with each other.

CS Module
A 3-phase input rectifier containing a half-controlled diode/thyristor bridge. This module supplies DC to the three CD modules and also includes an integral dynamic brake switch.
Features and Benefits

AC890PX Modular Chassis drive can be configured for five modes of operation allowing the appropriate level of control to be selected for the motor and application:

- **Open-loop V/F speed control**
  This is the simplest form of control available and is ideal for motor speed control where an AC induction motor is controlled by varying the voltage and frequency supplied to the motor.

- **Sensorless flux vector control**
  A ultra high performance sensorless vector algorithm, delivers a combination of both high torque and close speed regulation without the need for any speed measuring transducer.

- **Closed-loop flux vector control**
  Full closed-loop flux vector performance can be achieved by simply adding an encoder feedback ‘technology box’. This provides 100 % continuous full load standstill torque, plus a highly dynamic speed loop more than sufficient for the most demanding of applications.

- **Servo control**
  Extremely fast control loops and process bus make the AC890PX Modular Chassis drive ideal for single Permanent magnet AC motor control.

- **4 Quadrant active front-end power supply module**
  The drive is used to feed energy back into the mains supply with sinusoidal currents and unity power factor with very low levels of harmonic distortion.

Suitable for use with AC induction and PMAC motors

AC890PX Modular Chassis drive can control any of the following motor types, offering total flexibility of motor selection, allowing the most suitable motor to be selected for the application:

- AC Induction motors
- PMAC servo motors
- Torque Motors
- High speed PMAC servo motors

Compatible with a wide range of feedback options

Thanks to a range of optional feedback cards, AC890PX Modular Chassis drive works with all types of popular feedback systems providing greater flexibility during the design stage of a project:

- Incremental encoder
- Resolver
- SinCos (Endat 2.1) encoder
- Absolute encoder EnDat2.2 option 02
**AC890PX Control Module**

At the heart of the AC890PX Modular Chassis drive is a highly advanced control module that manages all of the drive’s functions. Taking advantage of leading edge control algorithms running on a fast 150 MHz microprocessor, the drive can achieve very high-bandwidth control loops. This allows you to use the drive for the most demanding of industrial applications.

**Features**

- Support for popular industrial fieldbus networks
- Range of feedback options
  - Incremental encoder
  - EnDat® 2.2 option 02 (SinCos) encoder
  - Resolver

**Ultra-fast control loops**
- Torque loop: 62.5 µs
- Speed loop: 62.5 µs
- Position loop: 62.5 µs

**Open FireWire IEEE 1394 Process Port**
- 125 µs cycle time
- Real-time synchronization between drives

**Benefits**

**Integrated safety functionality**

The integrated Safe Torque Off (STO) functionality offers protection against unexpected motor start-up, in accordance to EN 13849-1 PLe, SIL 3 as standard.

**Minimal delay between fieldbus setpoints and the control loops**

Designed to integrate in existing automation systems, the AC890PX Modular Chassis drive features high performance ports linked directly to the fast control loops of the drive. Minimum delay exists between your digital setpoint sent through a fieldbus and the control loops.

**Flexible feedback options**

The AC890PX Modular Chassis drive offers system designers complete flexibility in their choice of feedback technology to best suit the needs of their application.

**Open standards for protection of investment**

The AC890PX Modular Chassis drive has been specifically designed to integrate seamlessly into your automation network with the addition of a communications interface.

**Two performance levels to suit all applications:**

**Advanced Performance**

Motion control with position control,
Motion control function blocks: incremental move, absolute move, move home
Section Control: line drive master ramp, winder blocks (speed and current winder), PID process, sequencer control.

**High Performance**

All advanced features plus:
Library of pre-engineered application specific LINK VM function blocks such as:
Shaftless printing, cut-to-length, advanced winding and advanced traversing.
Tools

Programming / Operator Controls

The AC890PX Modular Chassis drive operator keypad provides access to all of the drive’s functions in a logical and intuitive manner. The backlit display presents all functions in plain language and engineering units. PLC-like function blocks for advanced applications.

- Multilingual
- Quick setup menu
- Auto-tuning
- Diagnostic messages
- Drive configuration

Applications

AC890PX Modular Chassis drives are suited to many different motor control and power conversion applications where power density and compactness are key design considerations:

- Fan and pump control
- Automotive test stands
- Extruders
- Decanter and batch centrifuges
- Hoists and cranes
- Winder/un-winder stands
- Ski-lifts and cable cars
- Wind turbine grid-tie
- Offshore and marine
- Solar energy capture
- Ocean / wave energy grid-tie

Drive System Explorer (DSE)

DSE software allows users to program, configure, monitor and diagnose AC890PX drives with the use of a PC. An easy to use interface guides the user through every step of project creation and implementation.
Component List Overview

The following is an overview of the parts supplied as part of an AC890PX Modular Chassis kit. The actual contents will vary dependant upon the configuration and rating of the product ordered.

<table>
<thead>
<tr>
<th>Qty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Backplate Busbar Assembly</td>
</tr>
<tr>
<td>1</td>
<td>Pair of mounting rails</td>
</tr>
<tr>
<td></td>
<td>Set of TS8 mounting brackets and assembly screws</td>
</tr>
<tr>
<td></td>
<td>Vent hood</td>
</tr>
<tr>
<td>1</td>
<td>AC890 series control module</td>
</tr>
<tr>
<td></td>
<td>AC890PX-Series STO card</td>
</tr>
<tr>
<td>1</td>
<td>CS module (AC890PXS only)</td>
</tr>
<tr>
<td>3</td>
<td>CD module</td>
</tr>
<tr>
<td>1</td>
<td>CP module (400 kW only)</td>
</tr>
<tr>
<td>1</td>
<td>Set of control cables</td>
</tr>
</tbody>
</table>
## Technical Characteristics

### Power Ratings

<table>
<thead>
<tr>
<th>Model Variant</th>
<th>Asynchronous motors</th>
<th>PMAC Servo motors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal 400 VAC modules / 565 VDC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>890PX**-43215..</td>
<td>110/147</td>
<td>132/177</td>
</tr>
<tr>
<td>890PX**-43260..</td>
<td>132/177</td>
<td>160/214</td>
</tr>
<tr>
<td>890PX**-43300..</td>
<td>160/214</td>
<td>200/268</td>
</tr>
<tr>
<td>890PX**-43420..</td>
<td>200/268</td>
<td>250/335</td>
</tr>
<tr>
<td>890PX**-43480..</td>
<td>250/335</td>
<td>315/422</td>
</tr>
<tr>
<td>890PX**-43520..</td>
<td>280/375</td>
<td>355/476</td>
</tr>
<tr>
<td>890PX**-43580..</td>
<td>315/422</td>
<td>400/536</td>
</tr>
<tr>
<td>Nominal 460 VAC modules / 650 VDC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>890PX**-43215..</td>
<td>112/150</td>
<td>149/200</td>
</tr>
<tr>
<td>890PX**-43260..</td>
<td>149/200</td>
<td>187/250</td>
</tr>
<tr>
<td>890PX**-43300..</td>
<td>187/250</td>
<td>224/300</td>
</tr>
<tr>
<td>890PX**-43420..</td>
<td>224/300</td>
<td>298/400</td>
</tr>
<tr>
<td>890PX**-43480..</td>
<td>298/400</td>
<td>298/400</td>
</tr>
<tr>
<td>890PX**-43580..</td>
<td>373/500</td>
<td>448/600</td>
</tr>
<tr>
<td>Nominal 575 VAC modules / 810 VDC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>890PX**-63160..</td>
<td>112/150</td>
<td>149/200</td>
</tr>
<tr>
<td>890PX**-63210..</td>
<td>149/200</td>
<td>187/250</td>
</tr>
<tr>
<td>890PX**-63260..</td>
<td>224/300</td>
<td>224/300</td>
</tr>
<tr>
<td>890PX**-63310..</td>
<td>112/150</td>
<td>298/400</td>
</tr>
<tr>
<td>890PX**-63410..</td>
<td>298/400</td>
<td>298/400</td>
</tr>
<tr>
<td>Nominal 690 VAC modules / 975 VDC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>890PX**-73130..</td>
<td>110/147</td>
<td>132/177</td>
</tr>
<tr>
<td>890PX**-73160..</td>
<td>132/177</td>
<td>160/214</td>
</tr>
<tr>
<td>890PX**-73190..</td>
<td>160/214</td>
<td>200/268</td>
</tr>
<tr>
<td>890PX**-73230..</td>
<td>200/268</td>
<td>250/335</td>
</tr>
<tr>
<td>890PX**-73280..</td>
<td>250/335</td>
<td>315/422</td>
</tr>
<tr>
<td>890PX**-73320..</td>
<td>280/375</td>
<td>355/476</td>
</tr>
<tr>
<td>890PX**-73340..</td>
<td>315/422</td>
<td>400/536</td>
</tr>
</tbody>
</table>

See Ordering Information for full order codes and description.
AC890PX Modular Chassis Drive
Technical Characteristics

Environmental Characteristics

**Operating Temperature**
0 to +40 °C, derate up to a maximum of +50 °C

**Storage Temperature**
-25 to +55 °C

**Shipping Temperature**
-25 to +70 °C

**Product Enclosure Rating**
IP20/ NEMA 1 standard

**Altitude**
1000 m ASL. Derate output current by 1.5 % per 100 m to a maximum of 2000 m

**Operating Humidity**
Maximum 90 % relative humidity at 40 °C non-condensing

**Climatic Conditions**
Class 3k3, as defined by EN60721

Electrical Characteristics

### AC890PX Modular Chassis Drive

#### Power Supply Requirements

<table>
<thead>
<tr>
<th>Power Supply</th>
<th>400 V Nominal</th>
<th>600 V Nominal</th>
<th>700 V Nominal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Input Voltage</td>
<td>3 Ø 300...460 VAC ±10 %</td>
<td>3 Ø 500...575 VAC ±10 %</td>
<td>3 Ø 600...690 VAC ±10 %</td>
</tr>
<tr>
<td>Input Frequency</td>
<td>45...65 Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Switching Frequency</td>
<td>2 kHz (standard), adjustable to 4 kHz de-rating may apply</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overload: Heavy Duty</td>
<td>150 % for 60 seconds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overload: Normal Duty</td>
<td>110 % for 60 seconds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Frequencies</td>
<td>0...1000 Hz in V/Hz mode</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0...350 Hz in Closed loop vector mode</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0...120 Hz in Sensorless vector mode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earth Leakage Current</td>
<td>&gt;100 mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input Power Factor</td>
<td>0.94</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Auxiliary Supply Requirements

<table>
<thead>
<tr>
<th>Auxiliary Voltage</th>
<th>24 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Module and Fans</td>
<td>30 W</td>
</tr>
</tbody>
</table>

**Tech Cards - Speed Feedback**

- 8902/EQ: Encoder Quadrature Incremental - 8 W
- 8902/E1: Sin/Cos Encoder - 3.3 W
- 8902/M1: Mark Registration - 1 W +5 V plus upto 3 W +24 V supply
- 8902/RE: Resolver - 3.2 W
- 8902/RR: Resolver + Repeater - 4.4 W

**Tech Cards - Communications**

- 8903/DN: Devicenet, 1.3 W
- 8903/CB: CANopen,
- 8903/CN: ControlNet,
- 8903/SP: Peer to peer
- 8903/PB: Profibus 2.3 W
- 8903/NIM: Modbus/TCP,
- 8903/IP: Ethernet IP,
- 8903/PB: Profinet 1.6 W

**Standards and Conformance**

**Pollution Degree**
Pollution degree II (non-conductive pollution, except for temporary condensation)

**Europe**
This product conforms with the Low Voltage Directive 2006/95/EC

**EMC Compatibility**
CE Marked to EN618000-3 (EMC Directive)

**Safety**
SIL3 / PLe as per EN13849-1
**Dimensions**

The AC890PX Modular Chassis Drive has been designed to mount in a standard 600 x 600 mm Rittal TS8 cubicle. The mounting system is sufficiently flexible to allow the AC890PXM to be installed in other floorstanding enclosure with minimal modification. If the product is to be mounted in a wider or deeper cubicle then additional brackets may be required to form a rigid frame. Refer to booklet HM501225U001 for detailed assembly and mounting instructions.

<table>
<thead>
<tr>
<th>Power Rating</th>
<th>Length (mm)</th>
<th>Width (mm)</th>
<th>Depth (mm)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>110 kW</td>
<td>1150</td>
<td>500</td>
<td>515</td>
<td>135 kg</td>
</tr>
<tr>
<td>132 kW</td>
<td>1150</td>
<td>500</td>
<td>515</td>
<td>135 kg</td>
</tr>
<tr>
<td>160 kW</td>
<td>1150</td>
<td>500</td>
<td>515</td>
<td>135 kg</td>
</tr>
<tr>
<td>200 kW</td>
<td>1150</td>
<td>500</td>
<td>515</td>
<td>135 kg</td>
</tr>
<tr>
<td>250 kW</td>
<td>1150</td>
<td>500</td>
<td>515</td>
<td>135 kg</td>
</tr>
<tr>
<td>280 kW</td>
<td>1150</td>
<td>500</td>
<td>515</td>
<td>155 kg</td>
</tr>
<tr>
<td>315 kW</td>
<td>1150</td>
<td>500</td>
<td>515</td>
<td>155 kg</td>
</tr>
</tbody>
</table>

Power Ratings are based on 400V nominal supply, constant torque ratings
All dimensions and weights are approximate.

Drawing shows TS8006 backplate
Connections

Power connectors

### Safe Torque Off (STO)

The AC890 series features Safe Torque Off functionality as standard, offering users protection against unexpected motor start-up in accordance with EN 13849-1 PLe or SIL 3. The STO functionality helps protect personnel and machinery by preventing the drive from restarting automatically. It disables the drive pulses and disconnects the power supply to the motor, so that the drive cannot generate any potentially hazardous movement. The state is monitored internally within the drive.

<table>
<thead>
<tr>
<th>Term.</th>
<th>Label</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X11/01</td>
<td>STOA</td>
<td>To disable STO: connect to X14/03</td>
</tr>
<tr>
<td>X11/02</td>
<td>STO 0V</td>
<td>To disable STO: do not connect</td>
</tr>
<tr>
<td>X11/03</td>
<td>STO B</td>
<td>To disable STO: connect to X14/03</td>
</tr>
<tr>
<td>X11/04</td>
<td>STO 0V</td>
<td>To disable STO: connect to X14/04</td>
</tr>
<tr>
<td>X11/05</td>
<td>STATUS-</td>
<td>To disable STO: do not connect</td>
</tr>
<tr>
<td>X11/06</td>
<td>STATUS+</td>
<td>To disable STO: do not connect</td>
</tr>
<tr>
<td>X11/07</td>
<td>STO 0V</td>
<td>To disable STO: connect to X14/04</td>
</tr>
</tbody>
</table>

The example wiring diagram shows the minimum connections required to implement STO with the AC890PXM series AC drives.

Users must conduct a risk assessment to identify the appropriate STO wiring scheme and ensure that all safety requirements are met.

It is the user's responsibility to ensure the safe and correct use of the STO function of the AC890PX-Series. Users should read and fully understand chapter 6 (Safe Torque Off) of the product user manual. Manual No. HA501299_01
### Non-power connectors

<table>
<thead>
<tr>
<th>Term.</th>
<th>Label</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X10/</td>
<td></td>
<td>USB programming port</td>
</tr>
<tr>
<td>X12/01</td>
<td>0 V</td>
<td>0 V Reference Supply</td>
</tr>
<tr>
<td>X12/02</td>
<td>AIN1</td>
<td>Analogue Input 1</td>
</tr>
<tr>
<td>X12/03</td>
<td>AIN2</td>
<td>analogue Input 2</td>
</tr>
<tr>
<td>X12/04</td>
<td>AIN3</td>
<td>Analogue Input 3 - Remote setpoint</td>
</tr>
<tr>
<td>X12/05</td>
<td>AIN4</td>
<td>Analogue Input 4 - Speed Trim</td>
</tr>
<tr>
<td>X12/06</td>
<td>AOUT1</td>
<td>AOUT1 - Speed Feedback</td>
</tr>
<tr>
<td>X12/07</td>
<td>AOUT2</td>
<td>AOUT2 - Torque Feedback</td>
</tr>
<tr>
<td>X12/08</td>
<td>+10 V</td>
<td>+10 V Reference Supply</td>
</tr>
<tr>
<td>X12/09</td>
<td>-10 V</td>
<td>-10 V Reference Supply</td>
</tr>
<tr>
<td>X13/01</td>
<td>24 VDC</td>
<td>24 VDC - User Supplied</td>
</tr>
<tr>
<td>X13/02</td>
<td>24 VDC</td>
<td>24 VDC - Daisy chain to next drive</td>
</tr>
<tr>
<td>X13/03</td>
<td>0 VDC</td>
<td>0 VDC - Daisy chain to next drive</td>
</tr>
<tr>
<td>X13/04</td>
<td>0 V</td>
<td>0 V -User Supplied</td>
</tr>
<tr>
<td>X14/01</td>
<td>DOUT3A</td>
<td>Drive healthy relay output</td>
</tr>
<tr>
<td>X14/02</td>
<td>DOUT3B</td>
<td>Drive healthy relay output</td>
</tr>
<tr>
<td>X14/03</td>
<td>24 VDC</td>
<td>24 V DC Common supply</td>
</tr>
<tr>
<td>X14/04</td>
<td>0 V</td>
<td>0 V Reference</td>
</tr>
</tbody>
</table>

### Diagram

- **Speed Potentiometer**
- **Encoder**
- **24 V Auxiliary Supply (optional)**
- **Drive Healthy**
- **Shield**
- **To Control Bracket**
- **0 V**
- **AIN1**
- **AIN2**
- **AIN3 - Remote Setpoint**
- **AIN4 - Speed Trim**
- **AOUT1 - Speed Feedback**
- **AOUT2 - Torque Feedback**
- **+10 V**
- **-10 V**
- **STO A**
- **STO B**
- **STO Status - STO Status +**
- **DOUT3A**
- **DOUT3B**
- **24 V**
- **0 V**
- **DIN1 - Jog**
- **DIN2 - Run**
- **DIN3 - Stop**
- **DIN4 - Reverse**
- **DIN5 - Unassigned**
- **DIN6 - Unassigned**
- **DIN7 - Unassigned**
- **DIN8/DOUT1 - Running**
- **DIN8/DOUT2 - Zero Speed**

---

**AC890PX Modular Chassis Drive**  
**Technical Characteristics**
Standard Power Configurations

AC Line Chokes
Line chokes providing 3% line impedance are mandatory for the AC890PX-Series drives and have several benefits including:

• Protecting the drive from voltage drops
• Eliminating nuisance trips
• Reducing harmonic distortion of the supply
• Increasing the life of the drive

EMC Filter - Optional
These EMC filters are a cost effective and easily implemented solution for the reduction of Radio Frequency Interference (RFI) in order to meet the requirements of EN61800-3 (EMC directive)

Semi-Conductor Fuses
Short circuit protection semiconductor fuses should be installed in the 3-phase supply to the CS input module to protect the drive’s input bridge. Circuit breakers of HRC fuses will not sufficiently protect the input bridge.

Output (Motor) Chokes
Where cable runs exceed 100 m, the use of motor chokes is advised to prevent nuisance tripping of the drive due to capacitive currents.
Versatile Power Configurations

The AC890PX-Series can be configured to operate in a number of different power configuration modes to suit the exact requirements of your application. The modularity of the AC890PX-Series enables different combinations of PowerPak modules to be easily selected and installed to achieve these schemes without involving significant amounts of pre-engineering work.

Building Blocks

AC890PX-Series is available in two basic variants which can be combined to create a number of different input power configurations.

Both versions are available in power ratings of 110 kW...400 kW

(SD) Standard Inverter

An AC fed inverter suitable for use with a 400...690 VAC input. This can be used either as a standalone drive in its own right or as the AC input drive in a multi-drive application.

(CD) DC Fed Inverter

A DC fed inverter for use with a 500...1000 VDC input. As with the SD inverter this can be used as a standalone drive where a suitable DC supply is available, or more usually as part of a multi-drive system.

Common DC Bus System

Common DC bus system using a standard (SD) inverter with a high power input stage to supply multiple (CD) common bus drives.
- Power range to 400 kW
- 400...700 VAC AC input
- Multi-motor applications
- Common DC bus power sharing

Using special option 1, 400 kW CS module running 3x110 kW CD sections

Standard Inverter (SD)

Standard inverter configuration for control of single motor applications in either open or closed loop mode.

DC Fed Inverter (CD)

DC fed inverter for either single or multi-drive configurations where a suitable DC input supply is available.
Active Front End (AFE)
Regenerative drive solution for excess system energy and for regenerative applications. With active input for elimination of supply harmonics with unity power factor.
- Power range to 2 MW
- 4Q regenerative system
- Unity power factor

Parallel (AC890PXP)
For power demands greater than 400 kW, offered as pre-built systems in either air or liquid cooled formats for single-, multi-motor, or AFE control.

AC890PX-Series control module can control up to 3x sections of power modules to achieve power ratings of up to 2000 kW.
- AC or DC input supply
- Motor control or AFE configuration
- Air-cooled to 1200 kW, advanced-cooled to 2 MW

12/18 Pulse Configuration
Offered as a pre-built system, the 12/18 pulse configuration can be used in single-motor applications where power quality and minimal supply harmonic distortion is critical.
- 400..690 VAC AC input
- Power range to 1000 kW
- Minimised input harmonics
## Accessories and Options

### Communication Interfaces

<table>
<thead>
<tr>
<th>Interface Code</th>
<th>Communication Interface</th>
<th>Supported Protocols</th>
<th>Communication Speed</th>
<th>Station Address</th>
<th>Suitable for firmware</th>
</tr>
</thead>
<tbody>
<tr>
<td>8903-IP-00</td>
<td>Ethernet IP communication interface</td>
<td>Ethernet IP</td>
<td>10/100 Mbits/s</td>
<td>By Drive System Explorer software via RTNX protocol</td>
<td>Version 3.2+</td>
</tr>
<tr>
<td>8903-IM-00</td>
<td>Ethernet Modbus/TCP communication interface</td>
<td>Modbus TCP</td>
<td>10/100 Mbits/s</td>
<td>By Drive System Explorer software via RTNX protocol</td>
<td>Version 3.2+</td>
</tr>
<tr>
<td>8903-DN-00</td>
<td>DeviceNet communication interface</td>
<td>Supports the group 2 only slave subset of the DeviceNet protocol</td>
<td>125 k, 250 k and 500 kbits/s</td>
<td>Dip switch or software setting of station address and network speed</td>
<td>Version 3.2+</td>
</tr>
<tr>
<td>8903-CB-00</td>
<td>CANopen communication interface</td>
<td>DS402</td>
<td>20 k, 50 k, 125 k, 250 k, 500 k, 1 Mbits/s selectable by software or DIP switch setting</td>
<td>DIP switch or software setting of station address and network speed</td>
<td>Version 1.9+</td>
</tr>
<tr>
<td>8903-CN-00</td>
<td>ControlNet communication interface</td>
<td>Selectable by software or DIP switch setting</td>
<td>Software setting of station address</td>
<td>Polled I/O</td>
<td>Version 1.4+</td>
</tr>
<tr>
<td>8903-PB-00</td>
<td>PROFIBUS-DP communication interface</td>
<td>PROFIBUS-DP; Demand data and Data exchange</td>
<td>Up to 12 Mbits/s; selected by the master</td>
<td>DIP switch or software setting of station address</td>
<td>Version 1.4+</td>
</tr>
<tr>
<td>8903-FA-00</td>
<td>Firewire IEEE 1394 communication interface</td>
<td>Up to 400 MBaud</td>
<td>Peer-to-peer communication between drives via IEEE 1394 standard</td>
<td>Version 3.2+</td>
<td></td>
</tr>
</tbody>
</table>
Communication Interfaces

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8903-PN-00</td>
<td>PROFINET I/O communication interface</td>
</tr>
<tr>
<td>Supported Protocols</td>
<td>PROFINET I/O Real-Time (RT) Protocol</td>
</tr>
<tr>
<td>Communication Speed</td>
<td>100 Mbits/s</td>
</tr>
<tr>
<td>Station Address</td>
<td>Software setting of station address via DSE</td>
</tr>
<tr>
<td>Suitable for firmware</td>
<td>Version 3.3+</td>
</tr>
</tbody>
</table>

| 8903-SP-00  | CAN peer to peer communication interface                                |
| Supported Protocols | Peer to peer data exchange with other drives                        |
| Communication Speed | Up to 1 Mbits/s selectable by DIP switch                      |
| Station Address   | Selected by DIP switch setting                                      |
| Suitable for firmware | Version 3.3+                                                   |

| 8903-CT-00  | EtherCAT communication interface                                        |
| Supported Protocols | CANopen over EtherCAT (CoE) DS301 compliant                          |
| Communication Speed | 100 Mbits/s                                                        |
| Suitable for firmware | Version 3.7+                                                   |

| 8903-RS-00  | RS485 / Modbus communication interface                                  |
| Supported Protocols | Modbus RTU only                                                       |
| Communication Speed | 1200 to 115200 bits/s                                                  |
| Station Address   | Selectable via software                                                |
| Suitable for firmware | Version 3.7+                                                   |

Feedback Cards

Incremental Quadrature Encoder Card 8902-EQ

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8902-EQ-00-00</td>
<td>Optional HTTL Incremental Encoder</td>
</tr>
<tr>
<td>Maximum pulse rate</td>
<td>250 kHz (differential)</td>
</tr>
<tr>
<td>Receiver current</td>
<td>≤10 mA per channel</td>
</tr>
<tr>
<td>Input Format</td>
<td>Two differential channels in quadrature (Clock/direction or clock only)</td>
</tr>
<tr>
<td>Input Voltage</td>
<td>±30 V (differential), 0...30 V (single-ended)</td>
</tr>
<tr>
<td>Input Voltage Differential</td>
<td>±30 V maximum</td>
</tr>
<tr>
<td>Input Voltage Threshold dip switch settings</td>
<td>3 V ±1 V (differential)</td>
</tr>
<tr>
<td>Encoder Power Supply</td>
<td>Maximum load 200 mA or 2 W</td>
</tr>
</tbody>
</table>

Description
The HTTL 8902-EQ speed feedback option allows incremental encoders to be connected directly to the drive to provide highly accurate speed feedback measurement. Supplies variable voltage isolated encoder power supply.

Resolver Feedback Card 8902-RE

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8902-RE-00-00</td>
<td>Optional Resolver feedback card</td>
</tr>
<tr>
<td>Maximum Speed</td>
<td>Up to 50 000 min⁻¹ (with 2 pole resolver)</td>
</tr>
<tr>
<td>Carrier Output Signal</td>
<td>7 Vrms, 8 kHz</td>
</tr>
<tr>
<td>Maximum Carrier Supply</td>
<td>70 mArms</td>
</tr>
<tr>
<td>Maximum Input Voltage</td>
<td>±12 Vpeak</td>
</tr>
<tr>
<td>Accuracy</td>
<td>&lt;5 minutes</td>
</tr>
<tr>
<td>Resolution</td>
<td>Equivalent to 16 bits in one revolution of resolver</td>
</tr>
<tr>
<td>Inputs</td>
<td>Differential inputs Zin ~2 kΩ</td>
</tr>
<tr>
<td>Maximum Input Voltage</td>
<td>12 Vpeak</td>
</tr>
</tbody>
</table>

Description
The 8902-RE resolver speed feedback option allows the resolver to be connected directly to the drive to provide highly accurate speed feedback measurement. Contains a carrier output signal to power the resolver.
Feedback Cards

SinCos® EnDat2.1 Feedback Card 8902-E1

<table>
<thead>
<tr>
<th>8902-EI-00-00</th>
<th>Optional SinCos® encoder card</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Pulse Rate</td>
<td>250 kHz</td>
</tr>
<tr>
<td>Receiver Impedance</td>
<td>120 Ω</td>
</tr>
<tr>
<td>Input Format</td>
<td>two differential 1 Vpp signals in quadrature</td>
</tr>
<tr>
<td>Encoder Supply</td>
<td>Maximum load 250 mA</td>
</tr>
<tr>
<td></td>
<td>Adjustable Voltage 5 V/10 V</td>
</tr>
</tbody>
</table>

Description

The SinCos® speed feedback option 8902-E1 allows a 1 Vpp SinCos® encoder to be connected directly to the drive to provide highly accurate speed feedback measurement. Decodes Heidenhain EnDat2.1 absolute position encoders and supplies 5 V or 10 V for the encoder.

SinCos® registration position 8902-M1 and 8903-M1

<table>
<thead>
<tr>
<th>8902-M1-00</th>
<th>Slave SinCos® registration</th>
</tr>
</thead>
<tbody>
<tr>
<td>8903-M1-00</td>
<td>Master SinCos® registration</td>
</tr>
<tr>
<td>Maximum Pulse Rate</td>
<td>250 kHz</td>
</tr>
<tr>
<td>Receiver Impedance</td>
<td>120 Ω</td>
</tr>
<tr>
<td>Input Format</td>
<td>2 differential 1 Vpp signals in quadrature</td>
</tr>
<tr>
<td>Encoder Supply</td>
<td>250 mA maximum load</td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>5 V/10 V adjustable</td>
</tr>
<tr>
<td>Terminal Type</td>
<td>Sub-D15 connector</td>
</tr>
<tr>
<td>Maximum Cable Length</td>
<td>150 m screened cable</td>
</tr>
<tr>
<td>Serial Protocol</td>
<td>EnDat2.1</td>
</tr>
</tbody>
</table>

Description

- The 8903-M1-00 and 8902-MA-00 feedback cards allow operation without external registration position, thanks to the connection of the encoder to the drive. They provide highly accurate speed feedback measurement and registration. Nevertheless registration applications are best achieved when both cards are used.
- Interpolates each encoder line with 11-bit accuracy giving 4 million counts/rev. on a 2048 line encoder
- Supplies 5 V or 10 V to the encoder
- Decodes Heidenhain EnDat2.1 absolute position encoders
- Isolated digital inputs that can be used either for general purpose inputs, or for inputs from registration mark sensor (8903-M1 only)
- 3 non-isolated digital outputs that can be either for general purpose outputs or for synthesizing an encoder output (8903-M1 only)

Approved Encoders

<table>
<thead>
<tr>
<th></th>
<th>1 Vpp</th>
<th>EnDat2.1</th>
<th>Single turn ABS</th>
<th>Multi-turn ABS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heidenhain:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECN113</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>ECN1113</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>EQN425</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECN413</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERN480</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stegmann:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HG660 AKR (xxxx)S</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HG660 DKR (xxxx)S</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Input and Output Cards

#### Auxiliary digital input (8903-M1… only)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low Logic Level</strong></td>
<td>0 V to 5 V relative to X63 pin 5</td>
</tr>
<tr>
<td><strong>High Logic Level</strong></td>
<td>15 V to 26 V relative to X63 pin 5</td>
</tr>
<tr>
<td><strong>Maximum Input Voltage</strong></td>
<td>30 V relative to X63 pin 5</td>
</tr>
<tr>
<td><strong>Input Current</strong></td>
<td>Low logic level &lt;1 mA, High logic level &gt;3 mA, &lt;10 mA</td>
</tr>
<tr>
<td></td>
<td>Typical input at 24 V: 7 mA</td>
</tr>
<tr>
<td><strong>Isolation withstand relative to drive chassis</strong></td>
<td>30 V</td>
</tr>
<tr>
<td><strong>Input Safety Category</strong></td>
<td>SELV</td>
</tr>
<tr>
<td><strong>Terminal Type</strong></td>
<td>6-way pluggable 3.5 mm terminal block</td>
</tr>
<tr>
<td><strong>Maximum Cable Length</strong></td>
<td>150 m screened cable is recommended for all lengths, but essential if over 30 m in order to comply with EMC regulations</td>
</tr>
</tbody>
</table>

#### Auxiliary digital outputs (8903-M1… only)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input Voltage (VS)</strong></td>
<td>5 V to 24 V</td>
</tr>
<tr>
<td><strong>Maximum Input Voltage</strong></td>
<td>30 V</td>
</tr>
<tr>
<td><strong>Maximum Output Current</strong></td>
<td>±100 mA per output</td>
</tr>
<tr>
<td><strong>Output Voltage</strong></td>
<td>Low logic level &lt;3 V to 100 mA</td>
</tr>
<tr>
<td></td>
<td>High logic level &gt;VS – 4 V to 100 mA</td>
</tr>
<tr>
<td><strong>Overload and short circuit duration</strong></td>
<td>Indefinite withstand</td>
</tr>
<tr>
<td><strong>Max. Output Frequency</strong></td>
<td>250 kHz per output</td>
</tr>
<tr>
<td><strong>Terminal Type</strong></td>
<td>8-way pluggable 3.5 mm terminal block</td>
</tr>
<tr>
<td><strong>Maximum Cable Length</strong></td>
<td>150 m screened cable is recommended for all lengths, but essential if over 30 m in order to comply with EMC regulations</td>
</tr>
</tbody>
</table>

### High Resolution Analogue Input 8903-AI and 8903-EP Encoder Card

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8903-AI-00-00</strong></td>
<td>High Resolution Analogue Input Card</td>
</tr>
<tr>
<td><strong>8903-EP-00-00</strong></td>
<td>Encoder Card</td>
</tr>
<tr>
<td><strong>Maximum pulse rate</strong></td>
<td>250 kHz</td>
</tr>
<tr>
<td><strong>Receiver current</strong></td>
<td>≤10 mA per channel</td>
</tr>
<tr>
<td><strong>Input Format</strong></td>
<td>Two differential channels in quadrature (Clock/direction or clock only)</td>
</tr>
<tr>
<td><strong>Input Voltage</strong></td>
<td>±30 V (differential), 0-30 V (single-ended)</td>
</tr>
<tr>
<td><strong>Input Voltage Threshold dip switch settings</strong></td>
<td>3 V ±1 V (differential), 8 V ±1 V (single-ended)</td>
</tr>
<tr>
<td><strong>Encoder Power Supply</strong></td>
<td>Maximum output current ±100 mA per output</td>
</tr>
</tbody>
</table>

### High Resolution Analogue Input 8903-AI Only

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analogue Input</strong></td>
<td>15 bits + sign bit</td>
</tr>
<tr>
<td><strong>Input Voltage Range</strong></td>
<td>±11 V</td>
</tr>
<tr>
<td><strong>Input Format</strong></td>
<td>Differential</td>
</tr>
<tr>
<td><strong>Input Impedance</strong></td>
<td>100 kΩ</td>
</tr>
<tr>
<td><strong>Input Low Pass Filter</strong></td>
<td>3 kHz</td>
</tr>
<tr>
<td><strong>Encoder Power Supply</strong></td>
<td>Maximum output current ±100 mA per output</td>
</tr>
</tbody>
</table>
AC Input Chokes
Parker’s range of AC input chokes have been especially selected to match the requirements of the Parker AC drive range and are used to reduce the harmonic content of the supply current.

Nominal 400 VAC

<table>
<thead>
<tr>
<th>Model Number</th>
<th>[kW]</th>
<th>Input Current [A]</th>
<th>Inductance [µH]</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>890PXSA-43215</td>
<td>110</td>
<td>230</td>
<td>100</td>
<td>CO501691U411</td>
</tr>
<tr>
<td>890PXSA-43260</td>
<td>132</td>
<td>270</td>
<td>90</td>
<td>CO501691U413</td>
</tr>
<tr>
<td>890PXSA-43300</td>
<td>160</td>
<td>340</td>
<td>80</td>
<td>CO501691U416</td>
</tr>
<tr>
<td>890PXSA-43420</td>
<td>200</td>
<td>425</td>
<td>55</td>
<td>CO501691U420</td>
</tr>
<tr>
<td>890PXSA-43480</td>
<td>250</td>
<td>535</td>
<td>45</td>
<td>CO501691U425</td>
</tr>
<tr>
<td>890PXSA-43520</td>
<td>280</td>
<td>600</td>
<td>40</td>
<td>CO501691U428</td>
</tr>
<tr>
<td>890PXSA-43580</td>
<td>315</td>
<td>680</td>
<td>35</td>
<td>CO501691U431</td>
</tr>
</tbody>
</table>

For other voltages please contact your local sales office.

Output Chokes
To limit capacitive currents and prevent nuisance tripping in installations with longer cable runs over 100 m, a choke may be fitted to the drives output. This limits the capacitive current and prevents overcurrent trips and excessive temperature rise in the motor. These may be used with 380/460 V and 500/575 VAC drives.

<table>
<thead>
<tr>
<th>Motor Choke Maximum Current</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 A</td>
<td>CO471702U250</td>
</tr>
<tr>
<td>320 A</td>
<td>CO471702U320</td>
</tr>
<tr>
<td>400 A</td>
<td>CO471702U400</td>
</tr>
<tr>
<td>500 A</td>
<td>CO471702U500</td>
</tr>
<tr>
<td>600 A</td>
<td>CO471702U600</td>
</tr>
<tr>
<td>700 A</td>
<td>CO471702U750</td>
</tr>
</tbody>
</table>

Auxiliary Transformers
1 kVA 30 VAC control transformer for auxiliary power supply requirements.

<table>
<thead>
<tr>
<th>Supply Voltage</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>400-480 VAC</td>
<td>C0501514</td>
</tr>
<tr>
<td>500-690 VAC</td>
<td>C0501515</td>
</tr>
</tbody>
</table>
EMC Filter

A range of custom designed optional EMC (Electromagnetic Compatibility) filters are available for use with Parker SSD Drives product range. They are used to help achieve conformance with the EMC directive BS EN 61800-3:2004 - “Adjustable speed electrical power drive systems - Part 3.”

<table>
<thead>
<tr>
<th>Rating</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 132 kW</td>
<td>CO467843U340</td>
</tr>
<tr>
<td>Up to 315 kW</td>
<td>2-off CO467843U340</td>
</tr>
</tbody>
</table>

AFE 4 Quadrant

In many applications the overall power consumed by the system is less than the sum of power of the installed motors as some motors will be driven electrically while others are coasting, being driven by the momentum of the machine.

For such applications, it is beneficial to connect the drives of all sections of the machine to a common DC bus: the energy-generating sections are then fed into the energy-consuming sections, which reduces the overall energy consumption of the system.

Thanks to the 4 quadrant (4Q) functionality of the AC890PX-Series, excess energy in the system is returned to the network and not dissipated in the form of heat through braking resistors. The current waveforms are almost sinusoidal, which minimizes network harmonics.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Filter Assembly 110 V fans &amp; control</th>
<th>Filter Assembly 230 V fans &amp; control</th>
<th>L1 (5 %)</th>
<th>L2 (3 %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal 400 VAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 180 kW</td>
<td>LA482468U220</td>
<td>LA482471U220</td>
<td>CO468326U220</td>
<td>CO468325U220</td>
</tr>
<tr>
<td>Up to 280 kW</td>
<td>LA482468U315</td>
<td>LA482471U315</td>
<td>CO468326U315</td>
<td>CO468325U315</td>
</tr>
<tr>
<td>Up to 315 kW</td>
<td>LA482468U355</td>
<td>LA482471U355</td>
<td>CO468326U355</td>
<td>CO468325U355</td>
</tr>
<tr>
<td>Nominal 500 VAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 180 kW</td>
<td>LA482469U220</td>
<td>LA482472U220</td>
<td>CO468326U220</td>
<td>CO468325U220</td>
</tr>
<tr>
<td>Up to 280 kW</td>
<td>LA482469U315</td>
<td>LA482472U315</td>
<td>CO468326U315</td>
<td>CO468325U315</td>
</tr>
<tr>
<td>Up to 315 kW</td>
<td>LA482469U355</td>
<td>LA482472U355</td>
<td>CO468326U355</td>
<td>CO468325U355</td>
</tr>
</tbody>
</table>

Typical AFE drive configuration
Drive System Explorer (DSE) Software

Description
DSE890 is the programming, monitoring and diagnostic software platform for AC890 and AC890PX series variable speed drives. Communication between the drive and PC is via a mini USB port located on the front of the drive. Thanks to the on-line help, users can achieve the optimum drive configuration without the need to navigate through complicated parameter menus. Advanced programming is carried out through a set of pre-engineered templates in order to create the required configuration. It is possible to monitor every parameter of the drive either as a digital value or as a function in the “chart recorder” during normal operation. Creates projects quickly and easily

- Graphical tool based on a block diagram approach
- Integrated digital oscilloscope
- On-line configuration and monitoring
- System identification tool

Product Codes

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSE Lite software (single axis) + USB cable</td>
<td>8906-DSELITE-00</td>
</tr>
<tr>
<td>DSE Development software + USB cable</td>
<td>8906-DSEDEV-00</td>
</tr>
<tr>
<td>DSE Runtime/Maintenance + USB cable</td>
<td>8906-DSERUN-00</td>
</tr>
<tr>
<td>DSD to DSE Development Upgrade + USB cable</td>
<td>8906-DSEDE</td>
</tr>
<tr>
<td>DSD Runtime to DSE Runtime Upgrade + USB cable</td>
<td>906-DSERUNUPG-00</td>
</tr>
</tbody>
</table>

DSE890 Programming Software

Parameter adjustment and project creation

real-time data acquisition oscilloscope

System identification tool
### Order Code

#### AC890PX Modular Chassis Drive

<table>
<thead>
<tr>
<th>Order example</th>
<th>890PX S A - 4 3215 M - B 0 0 - 1 A 0 0 0</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Drive family</strong></td>
<td>890PX High Power Modular AC Drive Series</td>
</tr>
<tr>
<td><strong>2 Configuration</strong></td>
<td>S Standalone Drive (SD) C Common DC Bus Drive (CD)</td>
</tr>
<tr>
<td><strong>3 Cooling</strong></td>
<td>A Air-Cooled</td>
</tr>
<tr>
<td><strong>4 Nominal voltage</strong></td>
<td>4 400/460 V Nominal Supply 6 575 V Nominal Supply 7 690 V Nominal Supply</td>
</tr>
<tr>
<td><strong>6 Build Style</strong></td>
<td>M Modular Chassis Drive</td>
</tr>
<tr>
<td><strong>7 Brake</strong></td>
<td>0 Brake not available for CD inverter B Brake fitted as standard to SD inverter</td>
</tr>
<tr>
<td><strong>8 Enclosure</strong></td>
<td>0 No Enclosure (Frame M only)</td>
</tr>
<tr>
<td><strong>9 Documented special options (0-9)</strong></td>
<td>0 No special option</td>
</tr>
<tr>
<td><strong>10 Performance level</strong></td>
<td>1 Advanced 2 High</td>
</tr>
<tr>
<td><strong>11 Supply Frequency</strong></td>
<td>A 50 Hz B 60 Hz</td>
</tr>
<tr>
<td><strong>12 Feedback Option - Slot F</strong></td>
<td>0 None 1 SinCos encoder (Endat 2.1) 3 Incremental quadrature encoder 5 Resolver 6 Resolver repeater 7 Mark registration (Endat 2.1 encoder)</td>
</tr>
<tr>
<td><strong>13 Technology Option - Slot A</strong></td>
<td>0 None N CANopen communications C ControlNet communications D DeviceNet communications P Profibus communications T Modbus TCP/IP H Ethernet IP F Profinet 7 Mark registration (Endat 2.1 encoder) S RS485 communications E Encoder with repeater output R High Resolution Analogue Input</td>
</tr>
<tr>
<td><strong>14 Option B</strong></td>
<td>0 Not fitted A Firewire 1394A X CAN peer-to-peer communications E Encoder with repeater output R High Resolution Analogue Input</td>
</tr>
</tbody>
</table>
Packaged Drives Options - Factory Supplied

High Power Packaged AC Drives

**AC890PX FASTPACK Drive: 110 - 400 kW**

In addition to being supplied in kit form, AC890PX Modular Chassis drives can be supplied as a FASTPACK free-standing drive complete with all necessary ancillary components to enable control of either an AC induction or Permanent Magnet AC motor.

Designed as a simple replacement to star/delta or soft start control of motors, FASTPACK can be configured to deliver complete control in a ready-to-install IP33 or IP54 enclosure.

Control options such as operator keypad, start/stop pushbuttons, emergency-stops and output contactors can all be selected from a list of standard options to meet a host of control requirements from simple motor speed control to more complex applications.

**AC890PX Modular Air-Cooled Parallel AC Drive Systems: 400 - 900 kW**

For systems with higher power requirements, up to 900 kW, a maximum of three AC890PX Modular Chassis drives can be connected in parallel with the use of additional input and output chokes.

Parker is able to offer this solution as a turnkey fully integrated drive system with all necessary ancillary control hardware and software.

Alternatively a simple freestanding drive with or without AFE can be supplied up to 900 kW.

With cooling designed to meet specific requirements, we can offer any number of cooling methods including chillers, air/water heat exchangers, force/natural ventilation or water cooling.
With the introduction of an innovative Parker-engineered cooling system, drive systems with increased power outputs can be created with an extremely compact footprint.

The award-winning, advanced cooling design draws from years of Parker experience in refrigeration technology combined with state of the art drive design to produce a truly high-performance AC drive range.

The hermetically sealed system has no compressor, requires no routine maintenance and uses a non-conductive, non-corrosive coolant.
Related Products

HMI Touchscreens

TS8000 Series

TS8000 is a high performance HMI touchscreen range with powerful features that would normally only be found in PC-based displays.

The TS8000 is able to communicate with many different pieces of hardware through its 10/100Base-T Ethernet port.

Furthermore a USB programming port allows programs to be downloaded, or access to trending and data logging, while data can be collected and stored on a standard CompactFlash card, freeing up internal memory. Multi-lingual interface

- Built-in symbol library of common objects
- Built-in web server
- CompactFlash support
- Integrated automatic multiple protocol conversion
- Free programming software

HMI specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Screen</th>
<th>Colour</th>
<th>Number of Pixels</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS8003</td>
<td>32”/FSTN</td>
<td>2</td>
<td>128 x 64</td>
</tr>
<tr>
<td>TS8006</td>
<td>5.7”/TFT</td>
<td>256 QVGA</td>
<td>320 x 240</td>
</tr>
<tr>
<td>TS8008</td>
<td>7.7”/DSTN</td>
<td>256 VGA</td>
<td>640 x 480</td>
</tr>
<tr>
<td>TS8010</td>
<td>10.4”/TFT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS8015</td>
<td>15”/TFT</td>
<td>32 000 XGA</td>
<td>1024 x 768</td>
</tr>
</tbody>
</table>

Technical specifications

<table>
<thead>
<tr>
<th>Power Supply</th>
<th>24 VDC ±20 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>0...50 °C</td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>80 % non-condensing</td>
</tr>
<tr>
<td>Altitude</td>
<td>2000 m</td>
</tr>
<tr>
<td>Enclosure</td>
<td>IP66 / Nema 4</td>
</tr>
</tbody>
</table>
| Keypads               | TS8003: 8 user assignable keys, 5 navigation keys, 12 numeric keys, 7 dedicated keys
|                       | TS8006: 5 keys for on screen menus
|                       | TS8008: 7 keys for on screen menus
|                       | TS8010: 8 keys for on screen menus
|                       | TS8015: 9 keys for on screen menus
| Memory                | CompactFlash slot |
| Communication Ports   | Programming: USB 1.1 - connector type B, RS232 - via RJ12
|                       | Communication: RS232 - via RJ12; RS485 - via RJ45, Ethernet 10/100 Base T, - connector RJ45 |
Features

Pre-Engineered Projects
- Library with over 4000 symbols
- Support for BMP, JPG, WMF graphic files
- Database functionality
- Graphical Trend
- Alarm Logs
- Machine Drawings

Multilingual Interface

<table>
<thead>
<tr>
<th>Programming and Display in:</th>
<th>Italian</th>
<th>German</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td>French</td>
<td>Dutch</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unicode Support for:</th>
<th>Japanese</th>
<th>Chinese (traditional)</th>
<th>Chinese (simplified)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thai</td>
<td>Korean</td>
<td>Others available</td>
<td></td>
</tr>
</tbody>
</table>

Dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>a [mm]</th>
<th>b [mm]</th>
<th>c [mm]</th>
<th>d [mm]</th>
<th>e [mm]</th>
<th>Weight [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS8003</td>
<td>189.2</td>
<td>148.6</td>
<td>52</td>
<td>153.4</td>
<td>112.8</td>
<td>0.89</td>
</tr>
<tr>
<td>TS8006</td>
<td>224.3</td>
<td>179.8</td>
<td>58.4</td>
<td>188.5</td>
<td>144</td>
<td>1.36</td>
</tr>
<tr>
<td>TS8008</td>
<td>262</td>
<td>207.8</td>
<td>56</td>
<td>226.3</td>
<td>172</td>
<td>1.74</td>
</tr>
<tr>
<td>TS8010</td>
<td>325.8</td>
<td>241.3</td>
<td>56</td>
<td>293.3</td>
<td>210.1</td>
<td>2.51</td>
</tr>
<tr>
<td>TS8015</td>
<td>406.4</td>
<td>330.2</td>
<td>78.6</td>
<td>370.6</td>
<td>294.4</td>
<td>5.17</td>
</tr>
</tbody>
</table>

Options

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8000/CB/00</td>
<td>CANopen fieldbus option card (master)</td>
</tr>
<tr>
<td>8000/DN/00</td>
<td>DeviceNet option card</td>
</tr>
<tr>
<td>8000/PB/00</td>
<td>Profibus option card</td>
</tr>
<tr>
<td>8000/LK/00</td>
<td>LINK fieldbus option card</td>
</tr>
<tr>
<td>8000/FA/00</td>
<td>FireWire fieldbus option card</td>
</tr>
</tbody>
</table>
TMW Series Torque Motors 1200...22 100 Nm

Description
Parker Torque Motors are complete and ready-to-use “direct drive” systems, specifically designed for use with AC890 and AC890PX Modular Chassis drives to fully and effectively respond to the specific needs of the Plastics and Rubber industries. Developed in collaboration with machine builders and end-users, a number of innovative, dedicated features have been integrated into the motors, such as: a generously sized, integrated thrust bearing to support back pressure from the screw, as well as specific mechanisms allowing quick and easy removal of the screw from the motor. Delivering torques up to 22 100 Nm, at speeds ranging from 50 to 500 min⁻¹, Parker Torque Motors represent the perfect alternative to gearbox based systems, for extruders applications of power up to 400 kW.

- High power compact design
- Water or natural cooling
- Overtemperature protection built in
- Wide range of feedback devices
- Integrated thrust bearing
- Customizable shaft ends
- IP54 protection
- IMB3 mounting

MGV High Speed, Low-Inertia Servo Motors

Description
MGV Series servo motors are innovative direct drive solutions specially designed for applications that require high speeds and low inertias. MGV motors can be found in many automotive or aeronautical component test rigs (starters, pumps, alternators, gearboxes...). Highly responsive with exceptional dynamic performance, MGV motors are ideally suited to the needs of simulation testing: speed in urban cycle or motor racing, speed cycling of an internal combustion engine, etc.

- High maximum speeds avoid the need for mechanical gearing
- Low inertia allowing very fast acceleration / deceleration
- Constant power operation above nominal speed removes the requirement to oversize the drive
- Water cooling ensures compact size and low noise operation
- High dynamic capabilities allow the operating conditions of the tested product to be accurately reproduced
Round Frame Asynchronous Vector Motors 0.18 kW...315 kW

Description
These IE2 efficiency round frame asynchronous induction motors are suitable for use with the Parker SSD Drives AC650V, AC690+ and AC890PX Modular ranges of Inverters in closed-loop mode. Featuring a durable rigid construction, these motors are specially engineered for use in heavy industrial applications. Featuring axial, In-Line force ventilation fan and 2048 ppr incremental encoder, the round frame vector motor are suitable for general purpose closed-loop control applications. For applications requiring higher dynamic performance, such as in printing or test rig applications, the MA series square frame vector motors should be considered.

- Light Aluminium body up to and including 160 frame size. Cast Iron construction over 160 frame
- IP55 Protection as minimum
- Foot or flange mounting options
- Paint finished in Black
- Insulation Class F (IEC - EN60034-1))
- Auxiliary cooling fan allows low-speed operation
- 2048 ppr incremental encoder
- 3x PTC thermistors embedded in motor stator

Options
- Adjustable terminal box mounting position
- Holding brake
- IE3 efficiency
- Insulated bearings on 315 frame
- 8-Pole versions also available

Square Frame Asynchronous Vector Motors 0.75 kW...314 kW

Description
The MA series family of motors has been specially engineered to be suitable for high dynamic performance when used with a flux vector type controller - AC890PX Modular, AC690+ and AC650V. They permit operation in constant power at maximum speed up to 8000 min⁻¹.

- Compact square frame format
- Same frame dimensions as DC motors of similar power rating
- Thermostat embedded in stator
- Incremental encoder
- IP23 or IP54 protection
- Insulation Class F (CEI - EN60034-1))
- Auxiliary cooling fan allows low-speed high-torque operation
- High overload capability
- Higher operating speeds

Options
- Terminal box mounting on right or left
- PTC thermister
- S vibration class
- IP55 protection
- Roller bearing on frame 100
- Anti-condensation heater
At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374.

Parker's Motion & Control Technologies

Key Markets
- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Marine
- Oil & gas
- Transportation
- Welding

Key Products
- Air preparation
- Compact cylinders
- Fieldbus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature Valves
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- Vacuum generators, cups & sensors

Key Markets
- Aerospace
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductors & electronics
- Textile
- Wire & cable

Key Products
- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators

Key Markets
- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

Key Products
- Dynamic seals
- Elastomeric o-rings
- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogenous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management

AEROSPACE
Key Markets
- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

Key Products
- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes

FLUID & GAS HANDLING
Key Markets
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Marine
- Oil & gas
- Transportation
- Welding

Key Products
- Quick disconnects
- Tube fittings & adapters
- Rubber & thermoplastic hoses
- PTFE & PFA hoses, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects

CLIMATE CONTROL
Key Markets
- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

Key Products
- CO2 controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermastic expansion valves

HYDRAULICS
Key Markets
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

Key Products
- Diagnostic equipment
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & Thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects

HYDRAULICS
Key Markets
- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

Key Products
- Diagnostic equipment
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & Thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects
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